



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,599	07/03/2003	Yubo Miao	IME03-002	7269

7590 12/01/2006

STEPHEN B. ACKERMAN  
28 DAVIS AVENUE  
POUGHKEEPSIE, NY 12603

EXAMINER

BEISNER, WILLIAM H

ART UNIT	PAPER NUMBER
----------	--------------

1744

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/613,599

**Applicant(s)**

MIAO ET AL.

**Examiner**

William H. Beisner

**Art Unit**

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 21-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/03; 12/05</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-20, in the reply filed on 9/13/2006 is acknowledged. The traversal is on the ground(s) that "The field of search must necessarily cover both the process class/subclass 435/91.2 and product class/subclass 435/303.1, in addition to other related classes and subclasses, to provide a complete and adequate search. The fields of search for Groups I and II are clearly and necessarily co-extensive. The Examiner's suggestion that "in this case the apparatus as claimed can be used to practice another and materially different process, such as a process that does not require forming the array device in place and/or a process with employs an array device other than that made by the process of the claims of Group I" is speculative and has nothing to do with the Claims as presented in this patent application." and that a serious burden would not exist if the Examiner were required to examine both sets of claims.

This is not found persuasive because the device encompassed by claims 21-37 can be made by a different process and can be used to perform different methods other than those encompassed by claims 1-20. As a result, the searches are not "co-extensive". For example, when searching the device of claims 21-37, the Examiner would not be required to search the molding method art which would be required when searching claims 1-20.

The requirement is still deemed proper and is therefore made FINAL.

### ***Information Disclosure Statement***

Art Unit: 1744

2. The information disclosure statements filed 9/23/2003 and 12/12/2005 have been considered and made of record.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1744

6. Claims 1-12 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tretiakov et al.(US 6,556,940) in view of either Yoshida et al.(JP 04-8513).

The reference of Tretiakov et al. discloses a method of making a disposable multi-chamber chip (1) by using thermoforming which includes the use of vacuum and heat with respect to a mold whose surface includes a plurality of shallow depressions having a depth (See column 3, lines 26-51).

Claim 1 differs by reciting that the chambers are formed by using a first sheet of plastic material with a first softening temperature and a second sheet of plastic material that has a second softening temperature less than the first and heating all the materials to the second softening temperature. After heating, a pressure is applied to the sheets to force the material into the mold surface. The material is then cooled and the sheets are separated resulting in the formed multi-chamber chip.

The reference of Yoshida et al. discloses that it is conventional in the art to thermoform container or chamber structures from a sheet of plastic material using a second sheet of material (5) placed over a first sheet of material (8) to be formed in a mold (2). The sheets of material are heated (See elements 6) and a force is applied (See Figure 2). The material is cooled and a separated product is removed from the mold (See the English language abstract).

In view of this teaching, in the absence of a showing of criticality and/or unexpected results, it would have been obvious to one of ordinary skill in the art to employ the thermoforming method disclosed by the reference of Yoshida et al. when forming the chambers of the primary reference for the known and expected result of providing an alternative means

Art Unit: 1744

recognized in the art to achieve the same result while providing uniform pressurization as discussed by the reference of Yoshida et al. (See the English language abstract).

If the second sheet of material (5) does not inherently have a softening temperature less than that of the first sheet, it would have been obvious to one of ordinary skill in the art to determine the optimum materials to employ and heating temperatures based merely on the material employed to form the container while optimizing the molding conditions to maintain the efficiency of the molding process.

With respect to the material of the mold recited in claims 2, 8 and 15, it would have been obvious to one of ordinary skill in the art to determine the optimal material for the mold based on the material and size of product to be molded and while maintaining the efficiency of the molding process.

With respect to claims 3, 9 and 16, the reference of Tretiakov et al. discloses the use of PP as a first sheet of material (See column 3, line 30-34).

With respect to claims 4, 10 and 17, it would have been obvious to one of ordinary skill in the art to determine the optimal material for the second sheet of material based on the material and size of product to be molded and while maintaining the efficiency of the molding process.

With respect to the pressure and temperature of claims 5, 6, 11, 12, 18 and 19, again, in the absence of a showing of criticality and/or unexpected results, it would have been obvious to one of ordinary skill in the art to determine the optimal pressures and temperatures based merely on the material and/or size of the container product to be produced while maintaining the efficiency of the molding process.

Art Unit: 1744

With respect to claim 7, the reference of Tretiakov et al. discloses filling the chambers with liquid samples and using a cover slip (11) and heating blocks (12) for heating the samples.

With respect to the specific volume and/or thickness, it would have been obvious to one of ordinary skill in the art to determine the optimum amount of sample to employ while maintaining the efficiency of the heating system.

With respect to claim 14, the reference of Tretiakov et al. further discloses the use of a heat sink array (4) and heat blocks (12) and the application of pressure to maintain good contact between the sink and blocks (See column 4, lines 47-65).

7. Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tretiakov et al.(US 6,556,940) in view of Yoshida et al.(JP 04-8513) taken further in view of Lund et al.(US 6,558,947).

The combination of the references of Tretiakov et al. and Yoshida et al. has been discussed above.

Claims 13 and 20 recite that the sample chambers can be simultaneously heated to different temperatures.

The reference of Lund et al. discloses that it is conventional in the art to simultaneously heat a plurality of samples to different temperatures when performing thermal cycling reactions (See column 2, lines 26-44 and claim 1).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the system of the modified primary reference so as to simultaneously heat the plurality of

Art Unit: 1744


samples to different temperature as is conventional in the art to see the response of the samples to different temperature profiles.

*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Beisner whose telephone number is 571-272-1269. The examiner can normally be reached on Tues. to Fri. and alt. Mon. from 6:15am to 3:45pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys J. Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
William H. Beisner  
Primary Examiner  
Art Unit 1744

WHB